

SEQUENCE LISTING

<110> Whitehouse, Martha Jo

<120> Methods and Compositions for the  
Treatment and Prevention of Erectile Dysfunction

<130> 1671.003 (35784/208786)

<150> 60/188,480

<151> 2000-03-10

<150> 60/203,415

<151> 2000-05-11

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<210> 1

<211> 441

<212> DNA

<213> Bos taurus

<220>

<221> CDS

<222> (1)...(441)

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cca gcc cta cca gaa gat ggg ggg tcc ggg gcc ttc cca cca ggg cac  
Pro Ala Leu Pro Glu Asp Gly Gly Ser Gly Ala Phe Pro Pro Gly His  
1 5 10 15

48

ttc aaa gat cca aaa cga cta tat tgt aaa aac ggg ggg ttc ttc cta  
Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe Phe Leu  
20 25 30

96

cga atc cac cca gat ggg cga gta gat ggg gta cga gaa aaa tcc gat  
Arg Ile His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys Ser Asp  
35 40 45

144

cca cac atc aaa cta caa cta caa gcc gaa gaa cga ggg gta gta tcc  
Pro His Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val Val Ser  
50 55 60

192

atc aaa ggg gta tgt gcc aac cga tat cta gcc atg aaa gaa gat ggg  
Ile Lys Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu Asp Gly  
65 70 75 80

240

cga cta cta gcc tcc aaa tgt gta acc gat gaa tgt ttc ttc ttc gaa  
Arg Leu Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe Glu  
85 90 95

288

cga cta gaa tcc aac aac tat aac acc tat cga tcc cga aaa tat tcc  
Arg Leu Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys Tyr Ser

336

100

105

110

tcc tgg tat gta gcc cta aaa cga acc ggg caa tat aaa cta ggg cca 384  
 Ser Trp Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu Gly Pro  
           115             120             125

aaa acc ggg cca ggg caa aaa gcc atc cta ttc cta cca atg tcc gcc 432  
Lys Thr Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met Ser Ala  
130 135 140

aaa tcc taa 441  
Lys Ser \*  
145

<210> 2  
<211> 146  
<212> PRT  
<213> Bos taurus

<400> 2  
 Pro Ala Leu Pro Glu Asp Gly Gly Ser Gly Ala Phe Pro Pro Gly His  
     1              5                         10                         15  
 Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe Phe Leu  
     20                 25                         30  
 Arg Ile His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys Ser Asp  
     35                 40                         45  
 Pro His Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val Val Ser  
     50                 55                         60  
 Ile Lys Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu Asp Gly  
     65                 70                         75                         80  
 Arg Leu Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe Phe Glu  
     85   90                         95  
 Arg Leu Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys Tyr Ser  
     100   105                         110  
 Ser Trp Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu Gly Pro  
     115   120                         125  
 Lys Thr Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met Ser Ala  
     130   135                         140  
 Lys Ser  
     145

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<210> 3
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<212> DNA
<213> Homo sapiens
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<220>  
<221> CDS  
<222> (1)...(441)

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Pro Ala Leu Pro Glu Asp Gly Gly Ser Gly Ala Phe Pro Pro Gly His
   1           5           10          15

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ttc aag gac ccc aag cgg ctg tac tgc aaa aac ggg gac ttc ttc ctg 96

|   |     |     |     |
|---|-----|-----|-----|
| Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe Phe Leu |     |     |     |
| 20  | 25  | 30  |     |
| cgc atc cac ccc gac ggc cga gtt gac ggg gtc cgg gag aag agc gac |     |     | 144 |
| Arg Ile His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys Ser Asp |     |     |     |
| 35  | 40  | 45  |     |
| cct cac atc aag cta caa ctt caa gca gaa gag aga gga gtt gtg tct |     |     | 192 |
| Pro His Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val Val Ser |     |     |     |
| 50  | 55  | 60  |     |
| atc aaa gga gtg tgt gct aac cgt tac ctg gct atg aag gaa gat gga |     |     | 240 |
| Ile Lys Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu Asp Gly |     |     |     |
| 65  | 70  | 75  | 80  |
| aga tta ctg gct tct aaa tgt gtt acg gat gag tgt ttc ttt ttt gaa |     |     | 288 |
| Arg Leu Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe Glu     |     |     |     |
| 85  | 90  | 95  |     |
| cga ttg gaa tct aat aac tac aat act tac cgg tca agg aaa tac acc |     |     | 336 |
| Arg Leu Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys Tyr Thr |     |     |     |
| 100   | 105 | 110 |     |
| agt tgg tat gtg gca ctg aaa cga act ggg cag tat aaa ctt gga tcc |     |     | 384 |
| Ser Trp Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu Gly Ser |     |     |     |
| 115   | 120 | 125 |     |
| aaa aca gga cct ggg cag aaa gct ata ctt ttt ctt cca atg tct gct |     |     | 432 |
| Lys Thr Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met Ser Ala |     |     |     |
| 130   | 135 | 140 |     |
| aag agc tga   |     |     | 441 |
| Lys Ser *   |     |     |     |
| 145   |     |     |     |
| <210> 4   |     |     |     |
| <211> 146   |     |     |     |
| <212> PRT   |     |     |     |
| <213> Homo sapiens  |     |     |     |
| <400> 4   |     |     |     |
| Pro Ala Leu Pro Glu Asp Gly Ser Gly Ala Phe Pro Pro Gly His     |     |     |     |
| 1 5 10 15   |     |     |     |
| Phe Lys Asp Pro Lys Arg Leu Tyr Cys Lys Asn Gly Gly Phe Phe Leu |     |     |     |
| 20 25 30  |     |     |     |
| Arg Ile His Pro Asp Gly Arg Val Asp Gly Val Arg Glu Lys Ser Asp |     |     |     |
| 35 40 45  |     |     |     |
| Pro His Ile Lys Leu Gln Leu Gln Ala Glu Glu Arg Gly Val Val Ser |     |     |     |
| 50 55 60  |     |     |     |
| Ile Lys Gly Val Cys Ala Asn Arg Tyr Leu Ala Met Lys Glu Asp Gly |     |     |     |
| 65 70 75 80   |     |     |     |
| Arg Leu Leu Ala Ser Lys Cys Val Thr Asp Glu Cys Phe Phe Glu     |     |     |     |
| 85 90 95  |     |     |     |
| Arg Leu Glu Ser Asn Asn Tyr Asn Thr Tyr Arg Ser Arg Lys Tyr Thr |     |     |     |
| 100 105 110   |     |     |     |
| Ser Trp Tyr Val Ala Leu Lys Arg Thr Gly Gln Tyr Lys Leu Gly Ser |     |     |     |

|  |                   |     |
|--|-------------------|-----|
| 115<br>Lys Thr Gly Pro Gly Gln Lys Ala Ile Leu Phe Leu Pro Met Ser Ala<br>130<br>Lys Ser<br>145                                    | 120<br>135<br>140 | 125 |
| <br>   |                   |     |
| <210> 5  |                   |     |
| <211> 468  |                   |     |
| <212> DNA  |                   |     |
| <213> Bos taurus   |                   |     |
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| <220>  |                   |     |
| <221> CDS  |                   |     |
| <222> (1)...(468)  |                   |     |
| <br>   |                   |     |
| <400> 5  |                   |     |
| atg gca gcc ggg agc atc acc acg ctg cca gcc cta cca gaa gat ggg<br>Met Ala Ala Gly Ser Ile Thr Thr Leu Pro Ala Leu Pro Glu Asp Gly | 5                 | 48  |
| 1  | 10                | 15  |
| <br>   |                   |     |
| ggg tcc ggg gcc ttc cca cca ggg cac ttc aaa gat cca aaa cga cta<br>Gly Ser Gly Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu | 20                | 96  |
|  | 25                | 30  |
| <br>   |                   |     |
| tat tgt aaa aac ggg ggg ttc ttc cta cga atc cac cca gat ggg cga<br>Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg | 35                | 144 |
|  | 40                | 45  |
| <br>   |                   |     |
| gta gat ggg gta cga gaa aaa tcc gat cca cac atc aaa cta caa cta<br>Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu | 50                | 192 |
|  | 55                | 60  |
| <br>   |                   |     |
| caa gcc gaa gaa cga ggg gta gta tcc atc aaa ggg gta tgt gcc aac<br>Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn | 65                | 240 |
|  | 70                | 75  |
|  | 80                |     |
| <br>   |                   |     |
| cga tat cta gcc atg aaa gaa gat ggg cga cta cta gcc tcc aaa tgt<br>Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys | 85                | 288 |
|  | 90                | 95  |
| <br>   |                   |     |
| gta acc gat gaa tgt ttc ttc gaa cga cta gaa tcc aac aac tat<br>Val Thr Asp Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr         | 100               | 336 |
|  | 105               | 110 |
| <br>   |                   |     |
| aac acc tat cga tcc cga aaa tat tcc tcc tgg tat gta gcc cta aaa<br>Asn Thr Tyr Arg Ser Arg Lys Tyr Ser Ser Trp Tyr Val Ala Leu Lys | 115               | 384 |
|  | 120               | 125 |
| <br>   |                   |     |
| cga acc ggg caa tat aaa cta ggg cca aaa acc ggg cca ggg caa aaa<br>Arg Thr Gly Gln Tyr Lys Leu Gly Pro Lys Thr Gly Pro Gly Gln Lys | 130               | 432 |
|  | 135               | 140 |
| <br>   |                   |     |
| gcc atc cta ttc cta cca atg tcc gcc aaa tcc taa<br>Ala Ile Leu Phe Leu Pro Met Ser Ala Lys Ser *                                   | 145               | 468 |
|  | 150               | 155 |

<210> 6  
<211> 155  
<212> PRT  
<213> Bos taurus

<400> 6  
Met Ala Ala Gly Ser Ile Thr Thr Leu Pro Ala Leu Pro Glu Asp Gly  
1 5 10 15  
Gly Ser Gly Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu  
20 25 30  
Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg  
35 40 45  
Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu  
50 55 60  
Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn  
65 70 75 80  
Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys  
85 90 95  
Val Thr Asp Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr  
100 105 110  
Asn Thr Tyr Arg Ser Arg Lys Tyr Ser Ser Trp Tyr Val Ala Leu Lys  
115 120 125  
Arg Thr Gly Gln Tyr Lys Leu Gly Pro Lys Thr Gly Pro Gly Gln Lys  
130 135 140  
Ala Ile Leu Phe Leu Pro Met Ser Ala Lys Ser  
145 150 155

<210> 7  
<211> 474  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)...(468)

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Met Ala Ala Gly Ser Ile Thr Thr Leu Pro Ala Leu Pro Glu Asp Gly  
1 5 10 15  
ggc agc ggc gcc ttc ccg ccc ggc cac ttc aag gac ccc aag cgg ctg 96  
Gly Ser Gly Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu  
20 25 30  
tac tgc aaa aac ggg ggc ttc ttc ctg cgc atc cac ccc gac ggc cga 144  
Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg  
35 40 45  
gtt gac ggg gtc cgg gag aag agc gac cct cac atc aag cta caa ctt 192  
Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu  
50 55 60  
caa gca gaa gag aga gga gtt gtg tct atc aaa gga gtg tgt gct aac 240  
Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn  
65 70 75 80

|   |     |     |
|---|-----|-----|
| cgt tac ctg gct atg aag gaa gat gga aga tta ctg gct tct aaa tgt |     | 288 |
| Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys |     |     |
| 85  | 90  | 95  |
| gtt acg gat gag tgt ttc ttt ttt gaa cga ttg gaa tct aat aac tac |     | 336 |
| Val Thr Asp Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr     |     |     |
| 100   | 105 | 110 |
| aat act tac cgg tca agg aaa tac acc agt tgg tat gtg gca ctg aaa |     | 384 |
| Asn Thr Tyr Arg Ser Arg Lys Tyr Thr Ser Trp Tyr Val Ala Leu Lys |     |     |
| 115   | 120 | 125 |
| cga act ggg cag tat aaa ctt gga tcc aaa aca gga cct ggg cag aaa |     | 432 |
| Arg Thr Gly Gln Tyr Lys Leu Gly Ser Lys Thr Gly Pro Gly Gln Lys |     |     |
| 130   | 135 | 140 |
| gct ata ctt ttt ctt cca atg tct gct aag agc tga ttttaa          |     | 474 |
| Ala Ile Leu Phe Leu Pro Met Ser Ala Lys Ser *                   |     |     |
| 145   | 150 | 155 |

<210> 8  
<211> 155  
<212> PRT  
<213> Homo sapiens

<400> 8  
Met Ala Ala Gly Ser Ile Thr Thr Leu Pro Ala Leu Pro Glu Asp Gly  
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Gly Ser Gly Ala Phe Pro Pro Gly His Phe Lys Asp Pro Lys Arg Leu  
20 25 30  
Tyr Cys Lys Asn Gly Gly Phe Phe Leu Arg Ile His Pro Asp Gly Arg  
35 40 45  
Val Asp Gly Val Arg Glu Lys Ser Asp Pro His Ile Lys Leu Gln Leu  
50 55 60  
Gln Ala Glu Glu Arg Gly Val Val Ser Ile Lys Gly Val Cys Ala Asn  
65 70 75 80  
Arg Tyr Leu Ala Met Lys Glu Asp Gly Arg Leu Leu Ala Ser Lys Cys  
85 90 95  
Val Thr Asp Glu Cys Phe Phe Glu Arg Leu Glu Ser Asn Asn Tyr  
100 105 110  
Asn Thr Tyr Arg Ser Arg Lys Tyr Thr Ser Trp Tyr Val Ala Leu Lys  
115 120 125  
Arg Thr Gly Gln Tyr Lys Leu Gly Ser Lys Thr Gly Pro Gly Gln Lys  
130 135 140  
Ala Ile Leu Phe Leu Pro Met Ser Ala Lys Ser  
145 150 155

<210> 9  
<211> 9  
<212> PRT  
<213> Bos taurus

<400> 9  
Met Ala Ala Gly Ser Ile Thr Thr Leu  
1 5